

**Appl. No.** : 10/563,621  
**Filed** : April 17, 2006

## REMARKS

### Amendments

Assuming that the prior amendment originally filed August 19, 2009 is entered, Claims 1 and 12 have been further amended to clarify that the cationization degree of the water-soluble surface sizing agent is 1.4-2.0 meq/g. Support can be found at, for example, page 9, line 16, and page 10, line 33.

Claims 24 and 25 have been added. Support can be found at, for example, page 13, lines 5-8.

No new matter has been added. Applicant respectfully requests entry of the amendments and reconsideration of the application in view of the amendments and the following remarks.

The patentability of Claims 1, 12, and 16-23 has been discussed in the Amendment and Response to Final Office Action of August 19, 2009, the entry and consideration of which is requested in the RCE filed concurrently herewith.

### Rejection of Claim 1 Under 35 U.S.C. § 112

Claim 1 has been rejected under 35 U.S.C. § 112, second paragraph, asserting that it is unclear to what the aluminum sulfate is added, i.e., to the papermaking pulp or to the sizing agent. Claim 1 has been amended to clarify that the aluminum sulfate is added to the papermaking pulp, thereby obviating this rejection.

### Rejections of Claims 1, 12, and 16-23 Under 35 U.S.C. § 103

Claims 1, 12, and 16-23 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Koji et al (JP11-323774) or Yuji et al (JP2000-064193) or Noriaki (JP06-240598) as evidenced by Irene Brukle in "The Role of Alum in Historical Papermaking." Claim 19 was previously canceled.

Claims 1 and 12 have been amended to recite, among other things, the following features:

- 1) the cationization degree of the water-soluble surface sizing agent is 1.4-2.0 meq/g;
- 2) the average particle size of the water-soluble surface sizing agent is 40 nm or smaller;
- 3) aluminum sulfate is added at a ratio of less than 3.0% by weight relative to oven-dried pulp when manufacturing the base paper for newsprint; and

- 4) a ratio by solid weight of the styrene monomer of component (a) to the cationic monomer of component (b) is in the range from 80:20 to 20:80.

By the above particular combination, it is surprising that the newsprint paper having a low aluminum sulfate addition rate, as defined above and in Claims 1 and 12, has high water absorption resistance. The claimed invention provides an unpredictable solution to the problem where a newsprint paper having a low aluminum sulfate (neutral newsprint paper) has poor water resistance.

The Examiner asserts that it is obvious to try, choosing from a finite number of identified predictable solutions with a reasonable expectation of success (*Office Action*, p. 5). However, the Federal Circuit recently overturned an obvious-to-try rejection on the grounds that one of ordinary skill in the art could not have had a reasonable expectation of success due to the “unpredictable” nature of the field. See *Eisai Co. Ltd. v. Dr. Reddy's Laboratories, Ltd.*, 87 USPQ.2d 1452, 1457, 533 F3d 1353 (Fed. Cir. 2008).

In Table 1 on page 26 of the instant specification, even if components (a), (b), (c), and/or (d) were used, the cationization degree of the surface sizing agent varied from 0.5 meq/g to 1.7 meq/g. When the cationization degree is in a range of 1.4 to 2.0 meq/g as defined in the claims, the water droplet absorption degree can significantly be improved (see Examples 3-5 in comparison with Examples 1, 2, and Comparative Examples 1-5). No prior art teaches using the cationization degree to control the water droplet absorption degree of paper. Further, even if the same surface sizing agent satisfying the above cationization degree was used, the resultant water droplet absorption degree of paper varied depending on the amount of aluminum sulfate added to the paper. When aluminum sulfate is added at a ratio of less than 3.0% by weight relative to oven-dried pulp as defined in the claims, the water droplet absorption degree can significantly be improved (see Examples 4 and 5 in comparison with Comparative Example 7). No prior art teaches a combination of the cationization degree of the water-soluble surface sizing agent of 1.4-2.0 meq/g and aluminum sulfate added at a ratio of less than 3.0% by weight relative to oven-dried pulp. In combination with the above features, the claimed invention further recites that the average particle size of the water-soluble surface sizing agent is 40 nm or smaller, and a ratio by solid weight of the styrene monomer of component (a) to the cationic monomer of component (b) is in the range from 80:20 to 20:80. Thus, it would require an *excessively large number* of tests to optimize features to arrive at the features as defined in the claims. Due to the unpredictable

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nature of the field such as chemistry like the claimed invention, one of ordinary skill in the art could not have had a reasonable expectation of success in the particular combination of the features as defined in the claims.

In view of the foregoing, the claimed invention as defined in Claims 1 and 12 as amended herein would not have been *prima facie* obvious over Koji et al, Yuji et al, or Noriaki. Claims 16-18 and 20-23 also would not have been obvious at least due to their dependencies from Claim 1 or 12, in addition to the other further distinguishing features.

Applicants respectfully request withdrawal of the rejection.

#### No Disclaimers or Disavowals

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, the Applicants are not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. The Applicants reserve the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that the Applicants have made any disclaimers or disavowals of any subject matter supported by the present application.

#### **CONCLUSION**

In light of the Applicant's amendments to the claims and the foregoing Remarks, it is respectfully submitted that the present application is in condition for allowance. The grounds for rejection which are not discussed herein are moot and Applicants expressly do not acquiesce in the findings not separately addressed. Should the Examiner have any remaining concerns which might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below.

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Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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